

REMARKS

Claim 76 is amended. New claims 78-79 are added. The new claims are supported by exemplary embodiments of the invention disclosed at, for example, Fig. 21 of the originally-filed application. Reconsideration of the application in view of the remarks to follow is requested.

Claims 69-71 and 73-77 stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. The claim(s) are alleged to contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Moreover, Applicant's previously-filed response (filed June 7, 2004) is objected to for allegedly introducing new matter based on the same language for which the Examiner presents the §112, first paragraph rejections above. Accordingly, the following discussion addresses both issues simultaneously.

The Examiner is respectfully reminded that "it is now well accepted that a satisfactory description may be in the claims or in any other portion of the originally-filed specification. MPEP §2163 I. (8th Ed., revision no. 2). Applicant shows possession of the claimed invention by describing the claimed invention with all of its limitations using such descriptive means as words, **structures**, **figures**, diagrams and formulas that fully set forth the claimed invention. *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (Fed. Cir. 1997). Possession may be shown in a variety of ways

including...the disclosure of drawings.” MPEP §2163 I. (8th ed., revision no. 2). Additionally, the Federal Circuit Court has resolved the issue stating that **drawings alone** may be sufficient to provide the “written description of the invention” required by the first paragraph of 35 U.S.C. §112. *Vas-Cath, Inc. vs. Mahurkar*, 935 F.2d. 1555, 19 USPQ2d 1111, 1118 (Fed. Cir. 1991) (emphasis added). *See also Ex parte Horton*, 226 USPQ 697 (B.P.A.I. 1985) (drawings may be relied upon to satisfy the disclosure requirements of 35 U.S.C. §112). Moreover, the MPEP clearly states, “information contained in any one of the specification, claims or drawings of the application as filed might be added to any other part of the application without introducing new matter.” MPEP §2163.06 (8th Ed., revision no. 2).

The Examiner refers to claims 69, 76 and 77 as having the alleged problematic language (pgs. 2-3 of paper no20040625). Regarding claim 69, the alleged problematic language is, “an entirety of the insulative material comprising the same stoichiometry.” The Examiner states the insulative material filling the trench includes a thermally grown oxide liner and a CVD oxide, and then states that it is well known that stoichiometries of the thermally grown oxide liner and of the CVD oxide are different (pg. 3 of paper no. 20040625). Applicant has not defined the insulative material in claim 69 in this manner and the Examiner is improperly adding limitations to Applicant’s invention. The Examiner is respectfully reminded that “[a] fundamental principle contained in 35 U.S.C. 112, second paragraph is that applicants are their own lexicographers [and] [t]hey can define in the claims what they regard as their invention essentially in whatever terms

they choose...." MPEP §2173.01 (8th ed. revision no. 2).

Regarding written description support, Applicant directs the Examiner's attention to Figs. 20 and 21 to illustrate an exemplary insulative material as claimed in claim 69. First, referring to Fig. 20, an exemplary oxide layer 56 is formed within an exemplary trench 50. Next, referring to Fig. 21, the processing illustrated in Fig. 21 is analogous to the processing of Figs. 6-12 as stated at pg. 15, Ins.12-16 of the originally-filed application. An exemplary insulative material **fills trench** 50. Referring to Fig. 6 and pg. 4 of the originally-filed application which describes Fig. 6, an exemplary insulative material includes a high density plasma oxide represented by number 28. One skilled in the art understands that a high density plasma oxide comprises the same stoichiometry as positively recited in claim 69. Accordingly, the recitation of claim 69 to "an entirety of the insulative material comprising the same stoichiometry" has written support in the drawings of the originally-filed application, and therefore, pursuant to the above-stated authority, complies with the written description requirement. The §112 rejection against claim 69 and the objection to the previously-filed response are inappropriate and should be withdrawn.

The alleged problematic language of claim 76 is, "a trench comprises sidewalls extending substantially perpendicular relative the upper surfaces of the semiconductor substrate" (as amended). The Examiner states Applicant appears to be referring to the drawings and that drawings are not drawn to scale. Respectfully, the Examiner is reminded that the Federal Circuit has cited approvingly to a new matter analysis in this regard by the Court of Customs and Patent Appeals in *In re Heinle*, 342 F.2d 1001, 145

USPQ 131 (CCPA 1965). *Vas-Cath vs. Mahurkar*, 935 F.2d 1559, 19 USPQ2d 1111, 1118 (Fed. Cir. 1991). The *Heinle* Court reversed a PTO rejection of applicant's claims to a toilet paper core wherein the Examiner alleged the claims included subject matter having no clear basis in the application as filed. The claim limitation said to be without support required that the width of apertures in the core be "approximately one-fourth of the circumference of said core". *Id.* The Examiner termed this a "mathematical dimension" having no specific mention of such in the *words* of the specification. *Heinle*, at page 136 (emphasis in decision). However, reviewing the application drawings, the *Heinle* Court stated that it seems to us that the drawings conform to the one-fourth circumference limitation almost exactly. *Heinle*, at page 136. That is, the application as filed had no written dimensions or dimensional relationships stated in the specification, and yet, the *Heinle* Court found support for what the drawings did show, a **dimensional or spatial relationship** of one circumference relative another circumference. Importantly, the *Heinle* Court understood that patent drawings are not drawn to scale and cannot be relied upon to teach specific dimensions stating that patent drawings do not define the precise portions of elements depicted and thus may not be relied on to show particular distances or sizes when the specification is completely silent in that respect. *Heinle*, at page 136.

Regarding written description support for claim 76, Applicant directs the Examiner's attention to Fig. 17 of the above-referenced application. An exemplary trench is illustrated as opening 50 having a periphery (referenced as number 22 in Fig. 4) of sidewalls that extend substantially perpendicular relative the upper surfaces (not referenced) of a

semiconductor substrate 12. The recitation to “substantially perpendicular” is a spatial relationship between the sidewalls of the trench and the upper surfaces of the substrate and Fig. 17 clearly illustrates this spatial relationship. The recitation to “substantially perpendicular” is not a recitation to **specific dimensions**. Pursuant to the authority stated above, a spatial relationship shown in the drawings is appropriate as written support for the claims. Therefore, the recitation of claim 76 to “a trench comprises sidewalls extending substantially perpendicular relative the upper surfaces of the semiconductor substrate” is supported by the drawings of the originally-filed application and meets the written description requirement. The objection against the previously-filed response and the rejection against claim 76 are inappropriate and should be withdrawn.

The alleged problematic language of claim 77 is, “a trench comprises sidewalls connected by a bottom wall, and wherein the sidewalls form right angles with the bottom wall.” Referring to Fig. 17, an exemplary trench is illustrated as opening 50 having a periphery (referenced as number 22 in Fig. 4) that includes sidewalls that form right angles with a bottom wall as positively recited in claim 77. The recitation to “form right angles” is a spatial relationship between the sidewalls and bottom wall of the trench and Fig. 17 clearly illustrates this spatial relationship. The recitation to “form right angles” is not a recitation to **specific dimensions**. Pursuant to the authority above, a spatial relationship in the drawings is appropriate as written description support for the claims. Therefore, the language of claim 77 is supported by the drawings of the originally-filed application and meets the written description requirement. The objection against the previously-filed

response and the rejection against claim 77 are inappropriate and should be withdrawn.

Claims 69-71 and 73-77 stand rejected under 35 U.S.C. §102(e) as being anticipated by Kondo, 6,010,947.

Independent claim 69 recites an oxide layer formed over an upper surfaces of a semiconductor substrate and having an uppermost surface. Claim 69 recites further an insulative material filling the trench and having a portion outward of the trench and semiconductor substrate, the portion comprising an outermost upper surface elevationally above the uppermost surface of the oxide layer, and the portion further comprising sidewalls connecting the outermost upper surface with the oxide layer, the sidewalls comprising first and second curved segments. Kondo fails to teach or suggest sidewalls of a portion of insulative material that comprises first and second **curved segments** as positively recited in claim 69. Noticeably, the Examiner fails to point to teachings of Kondo that allegedly teaches this positively recited limitation. Since Kondo fails to teach or suggest a positively recited limitation of claim 69, claim 69 is allowable.

Moreover, Kondo fails to teach or suggest the claim 69 recitation to the portion comprises an outermost upper surface **elevationally above** the uppermost surface of the oxide layer. Kondo teaches an insulative film 95 formed in an opening of a substrate and an oxide film 92 is formed adjacent the insulative film 95 (Fig. 12A-12C). However, the insulative film 95 has an outermost upper surface that is **coplanar** with an uppermost surface of the oxide film 92. Consequently, it is inconceivable that Kondo teaches or suggests the portion comprises an outermost upper surface **elevationally above** the

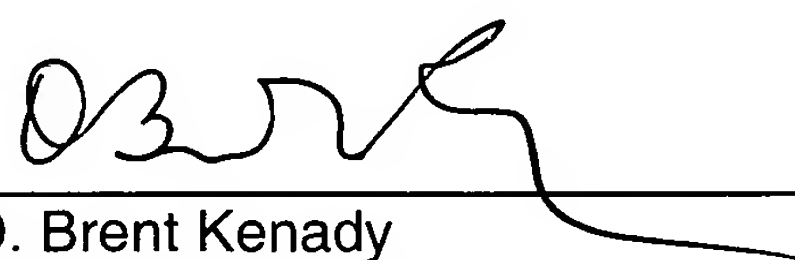
uppermost surface of the oxide layer as positively recited in claim 69. Since Kondo fails to teach or suggest a positively recited limitation of claim 69, claim 69 is allowable.

Claims 70-71 and 73-79 depend from independent claim 69, and therefore, are allowable for the reasons discussed above with respect to the independent claim, as well as for their own recited features which are not shown or taught by the art of record.

This application is now believed to be in immediate condition for allowance, and action to that end is respectfully requested. If the Examiner's next anticipated action is to be anything other than a Notice of Allowance, the undersigned respectfully requests a telephone interview prior to issuance of any such subsequent action.

Respectfully submitted,

Dated: 10-26-04

By: 
D. Brent Kenady
Reg. No. 40,045